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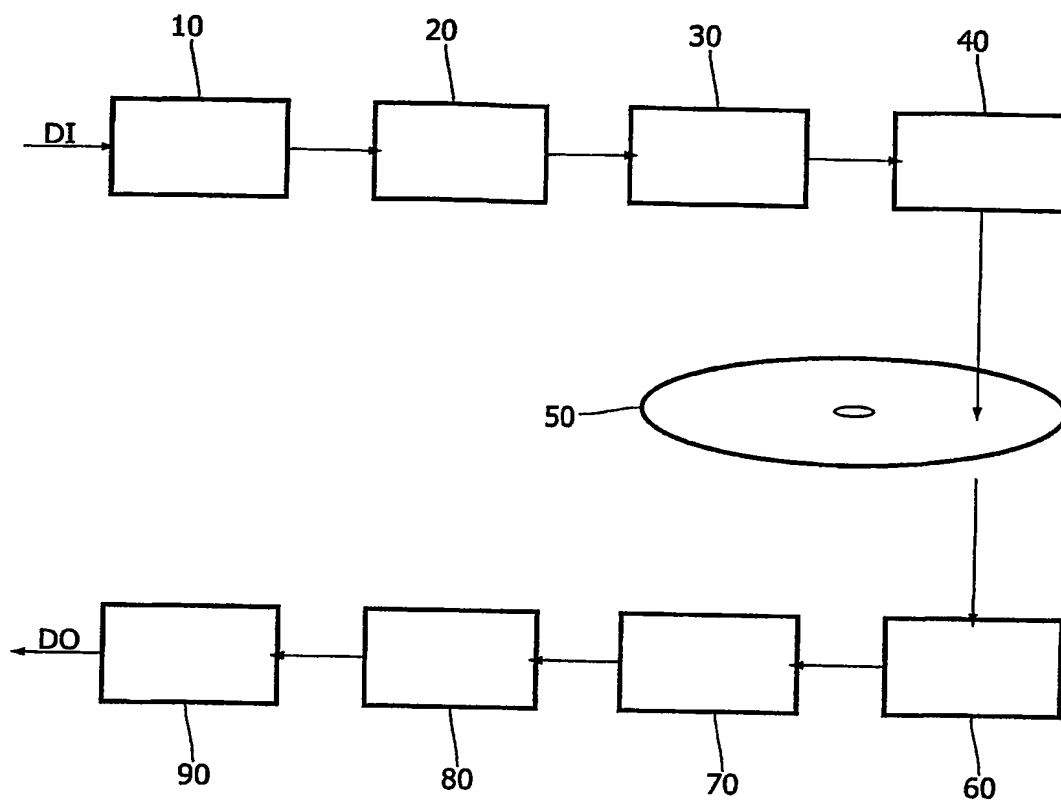


FIG.1

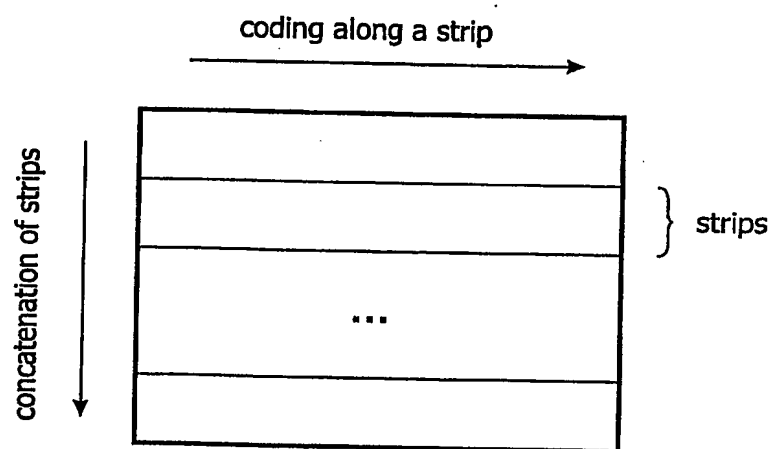


FIG.2

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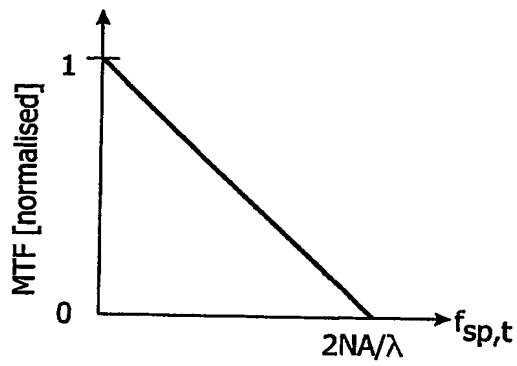


FIG. 3a

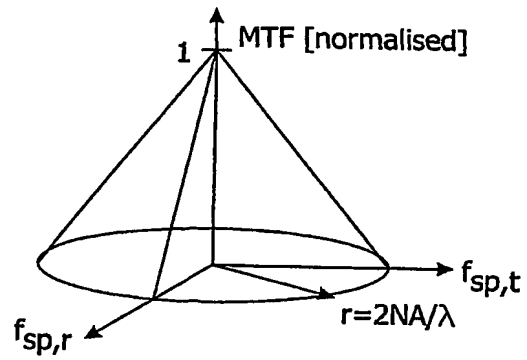


FIG. 3b

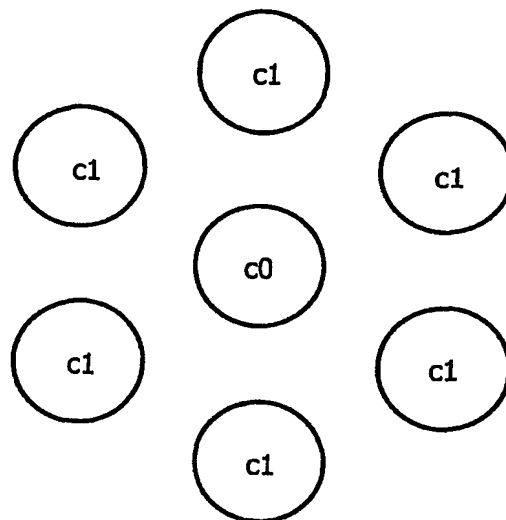


FIG. 4

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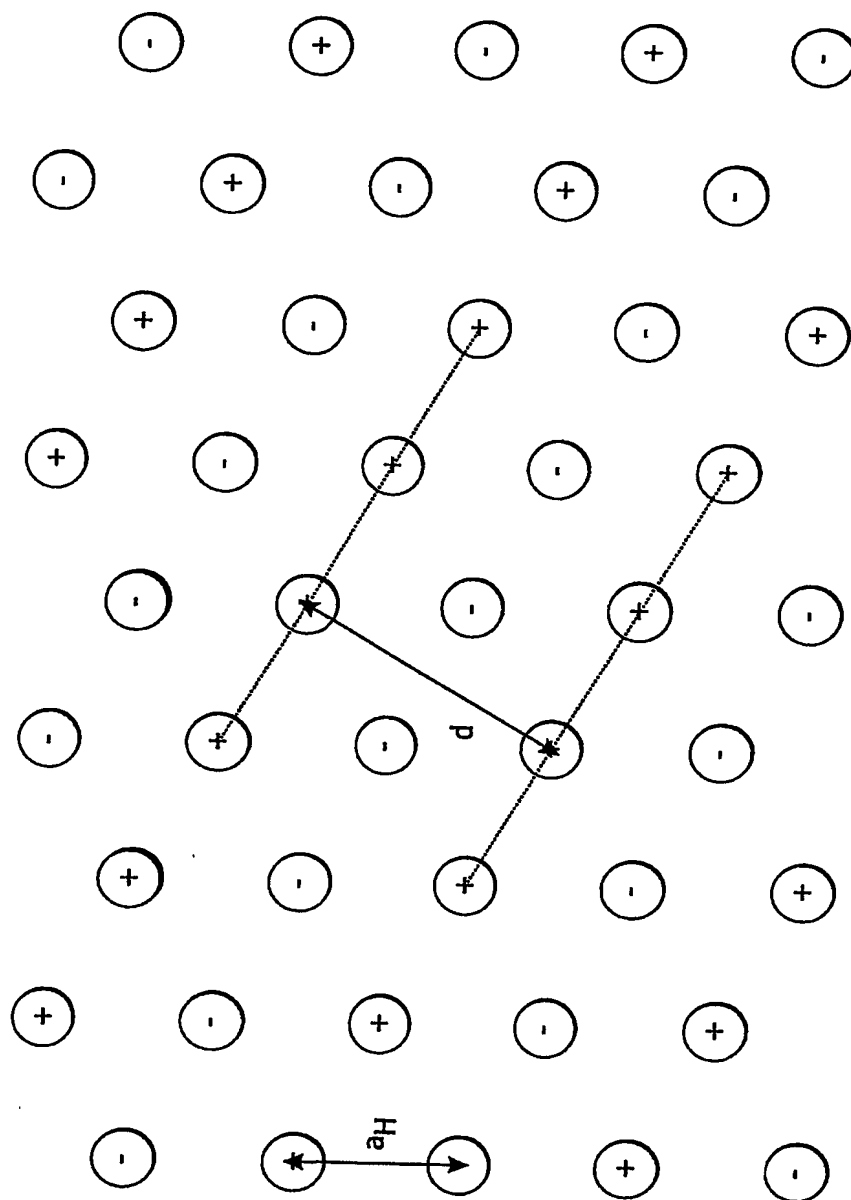


FIG.5

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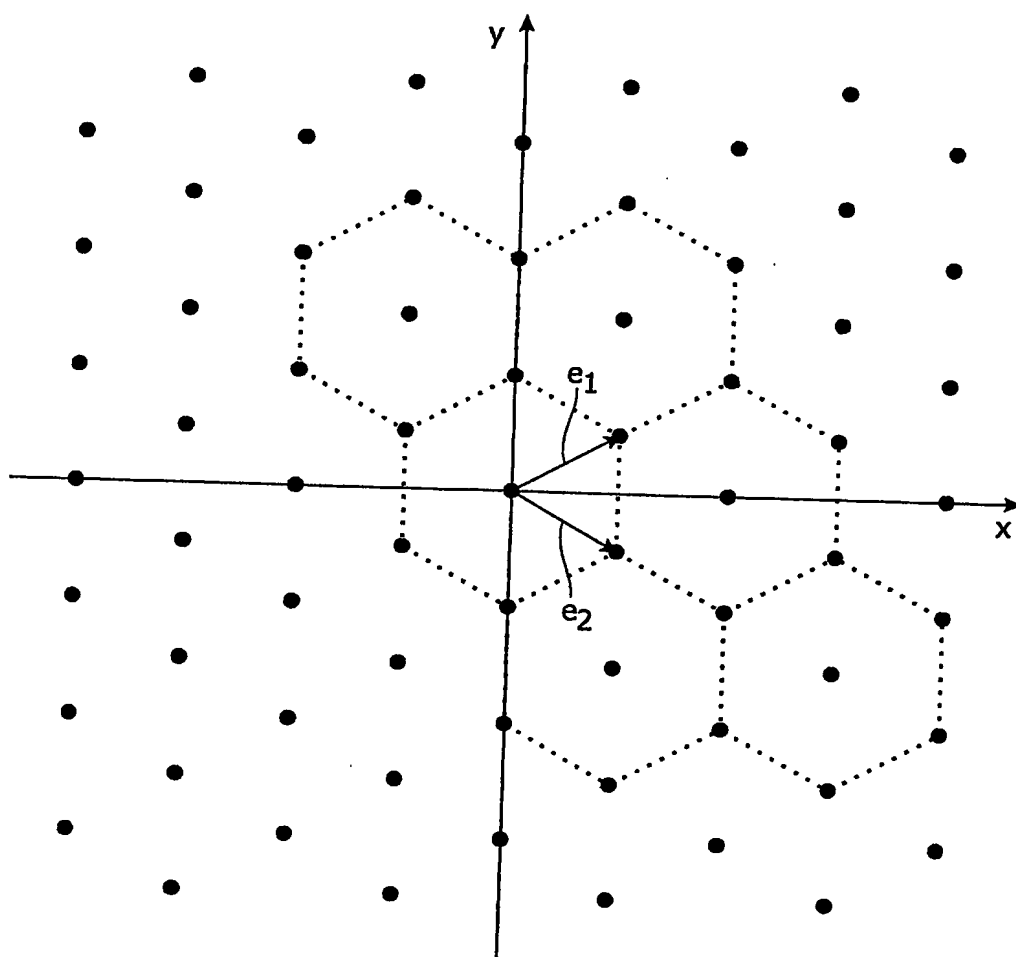


FIG.6

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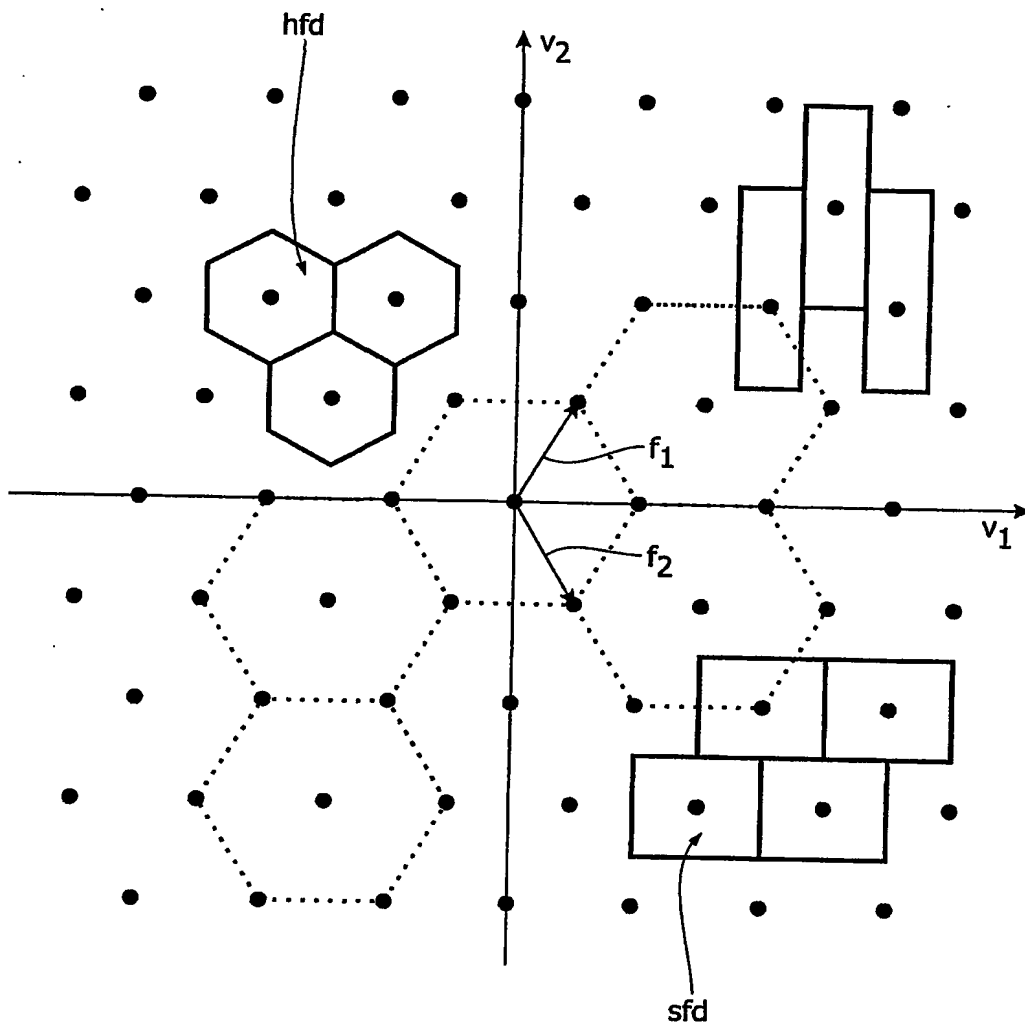


FIG.7



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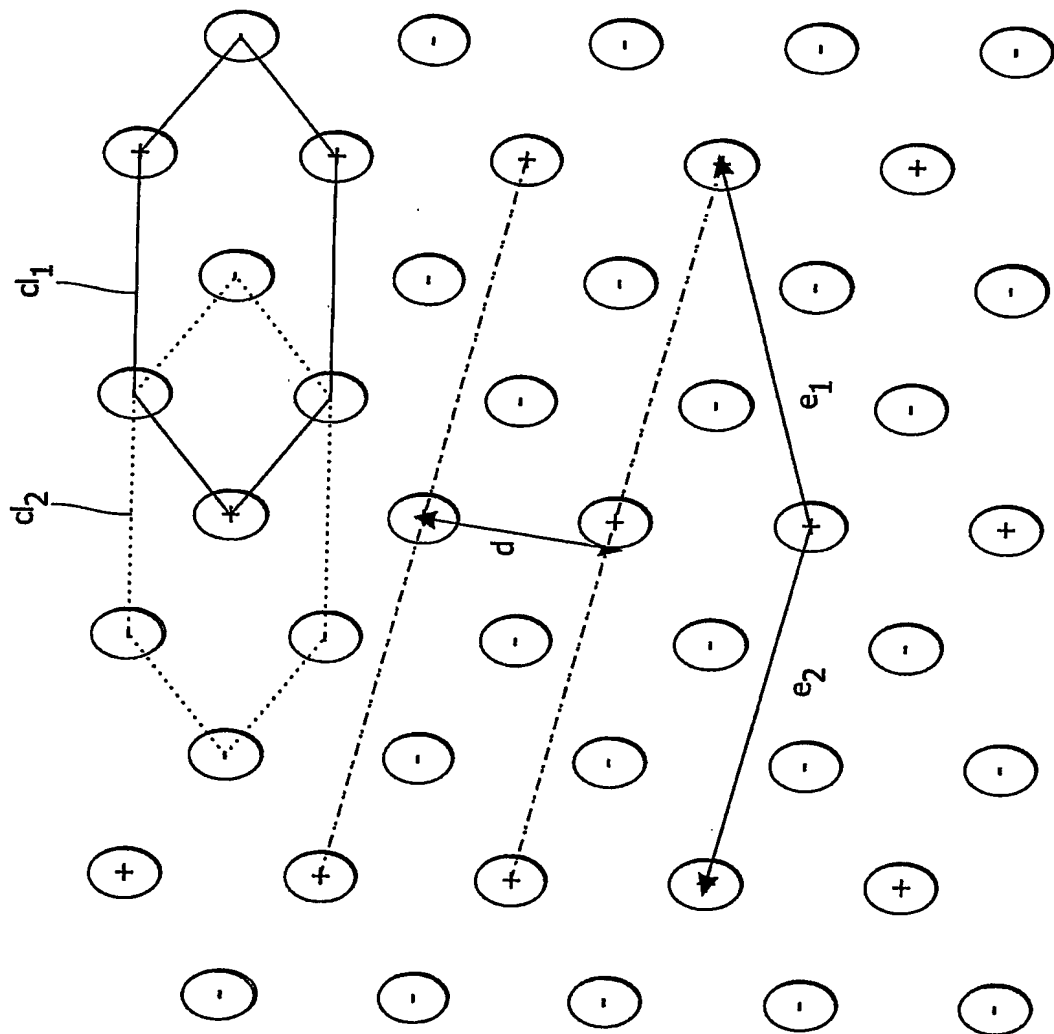


FIG.9

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STD-State $\sigma 1$	STD-State $\sigma 2$	STD-State $\sigma 3$	STD-State $\sigma 4$
$\begin{array}{c} x \\ / \\ x \quad \backslash \\ x \end{array}$	$\begin{array}{c} x \\ / \\ y \quad \backslash \\ y \end{array}$	$\begin{array}{c} x \\ / \\ y \quad \backslash \\ x \end{array}$	$\begin{array}{c} x \\ / \\ x \quad \backslash \\ y \end{array}$

FIG.10

Current NRZI triplet	Channel symbol	Next NRZI triplet
$b_{i1}$	$\rightarrow i \rightarrow$	$b_{i2} = b_{i1}(-1)^i$
$b_{j1}$	$\rightarrow j \rightarrow$	$b_{j2} = b_{j1}(-1)^j$
$b_{k1}$	$\rightarrow k \rightarrow$	$b_{k2} = b_{k1}(-1)^k$

FIG.11

rep. period	3	5
pat.1	$\begin{array}{ccc} 0 & 1 & 0 \\ 1 & 0 & 0 \\ 0 & 1 & 0 \end{array}$	$\begin{array}{ccccc} 0 & 1 & 0 & 1 & 0 \\ 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 1 & 0 \end{array}$
pat.2	$\begin{array}{ccc} 1 & 0 & 1 \\ 0 & 1 & 1 \\ 1 & 0 & 1 \end{array}$	$\begin{array}{ccccc} 1 & 0 & 0 & 0 & 1 \\ 0 & 1 & 1 & 1 & 1 \\ 1 & 0 & 1 & 0 & 1 \end{array}$

FIG.12



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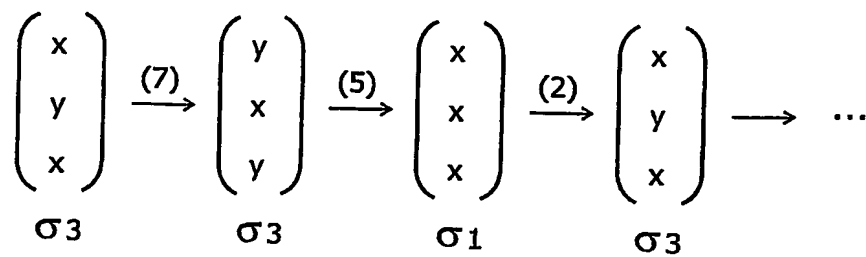


FIG.13

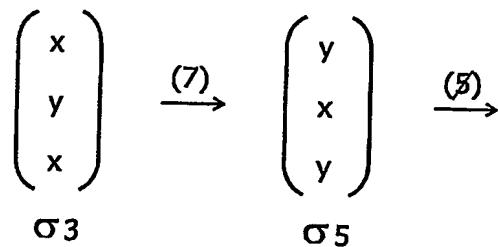


FIG.14a

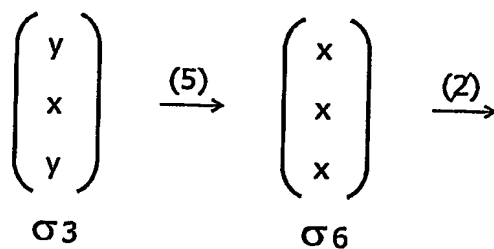


FIG.14b

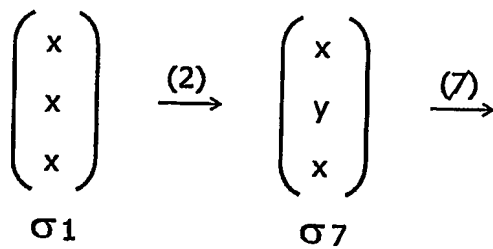


FIG.14c

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STD	Symbol							
	[0]	[1]	[2]	[3]	[4]	[5]	[6]	[7]
$\sigma_1$	$\sigma_1$	$\sigma_2$	$\sigma_7$	$\sigma_4$	$\sigma_4$	$\sigma_3$	$\sigma_2$	$\sigma_1$
$\sigma_2$	$\sigma_2$	$\sigma_1$	$\sigma_4$	$\sigma_3$	$\sigma_3$	$\sigma_4$	$\sigma_1$	$\sigma_2$
$\sigma_3$	$\sigma_3$	$\sigma_4$	$\sigma_1$	$\sigma_2$	$\sigma_2$	$\sigma_6$	$\sigma_4$	$\sigma_5$
$\sigma_4$	$\sigma_4$	$\sigma_3$	$\sigma_2$	$\sigma_1$	$\sigma_1$	$\sigma_2$	$\sigma_3$	$\sigma_4$
$\sigma_5$	$\sigma_3$	$\sigma_4$	$\sigma_1$	$\sigma_2$	$\sigma_2$	X	$\sigma_4$	$\sigma_5$
$\sigma_6$	$\sigma_1$	$\sigma_2$	X	$\sigma_4$	$\sigma_4$	$\sigma_3$	$\sigma_2$	$\sigma_1$
$\sigma_7$	$\sigma_3$	$\sigma_4$	$\sigma_1$	$\sigma_2$	$\sigma_2$	$\sigma_6$	$\sigma_4$	X

FIG.15

STD								
	$\sigma_1$	$\sigma_2$	$\sigma_3$	$\sigma_4$	$\sigma_5$	$\sigma_6$	$\sigma_7$	
$\sigma_1$	2	2	1	2	0	0	1	= D
$\sigma_2$	2	2	2	2	0	0	0	
$\sigma_3$	1	2	1	2	1	1	0	
$\sigma_4$	2	2	2	2	0	0	0	
$\sigma_5$	1	2	1	2	1	0	0	
$\sigma_6$	2	2	1	2	0	0	0	
$\sigma_7$	1	2	1	2	0	1	0	

FIG.16

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STD	$\sigma_1$	$\sigma_2$	$\sigma_3$	$\sigma_4$	$\sigma_5$	$\sigma_6$	$\sigma_7$	$\sigma_1'$	$\sigma_2'$	$\sigma_3'$	$\sigma_4'$	$\sigma_5'$	$\sigma_6'$	$\sigma_7'$
$\sigma_1$	1	2	1	2	0	0	1	1	0	0	0	0	0	0
$\sigma_2$	2	1	2	2	0	0	0	0	1	0	0	0	0	0
$\sigma_3$	1	2	0	2	1	1	0	0	0	1	0	0	0	0
$\sigma_4$	2	2	2	1	0	0	0	0	0	0	1	0	0	0
$\sigma_5$	1	2	0	2	1	0	0	0	0	1	0	0	0	0
$\sigma_6$	1	2	1	2	0	0	0	1	0	0	0	0	0	0
$\sigma_7$	1	2	0	2	0	1	0	0	0	1	0	0	0	0
$\sigma_1'$	1	2	1	2	0	0	1	0	0	0	0	0	0	0
$\sigma_2'$	2	1	2	2	0	0	0	0	0	0	0	0	0	0
$\sigma_3'$	1	2	0	2	1	1	0	0	0	0	0	0	0	0
$\sigma_4'$	2	2	2	1	0	0	0	0	0	0	0	0	0	0
$\sigma_5'$	1	2	0	2	1	0	0	0	0	0	0	0	0	0
$\sigma_6'$	1	2	1	2	0	0	0	0	0	0	0	0	0	0
$\sigma_7'$	1	2	0	2	0	1	0	0	0	0	0	0	0	0

= D

FIG.17

$x_1$	$x_2$	$x_3$	$i_s(x)$
0	0	0	0
0	0	1	$1.n_s(0,0,0) = 1.1=1$
0	1	0	$1.n_s(0,0) = 1.2=2$
0	1	1	$1.n_s(0,0)+1.n_s(0,1,0) = 2+1=3$
1	0	0	$1.n_s(0) = 4$
1	0	1	$1.n_s(0)+1.n_s(1,0,0) = 4+1=5$
1	1	0	$1.n_s(0)+1.n_s(1,0) = 4+2=6$
1	1	1	$1.n_s(0) + 1.n_s(1,0) + 1.n_s(1,1,0) = 4+2+1=7$

FIG.18

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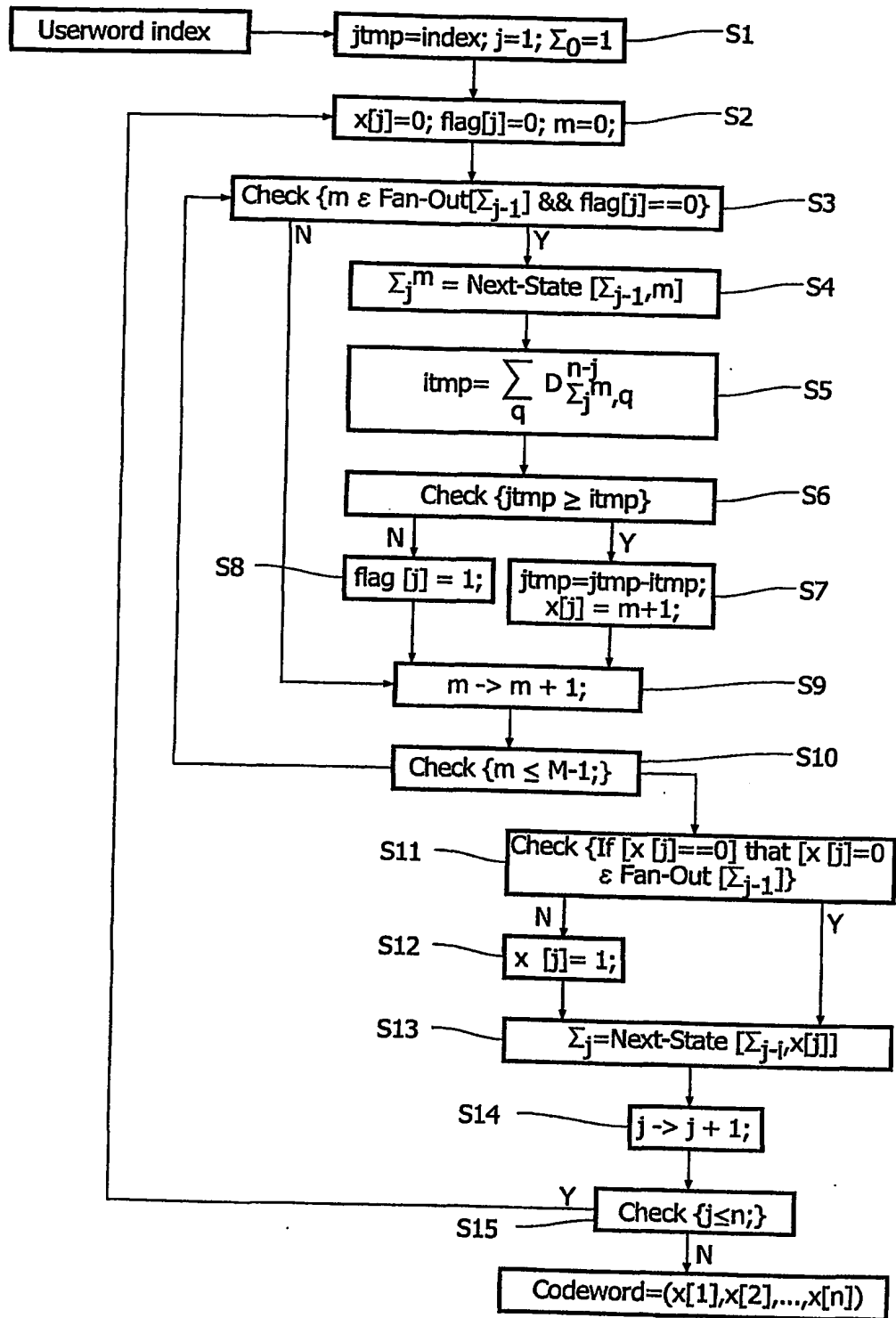


FIG.19

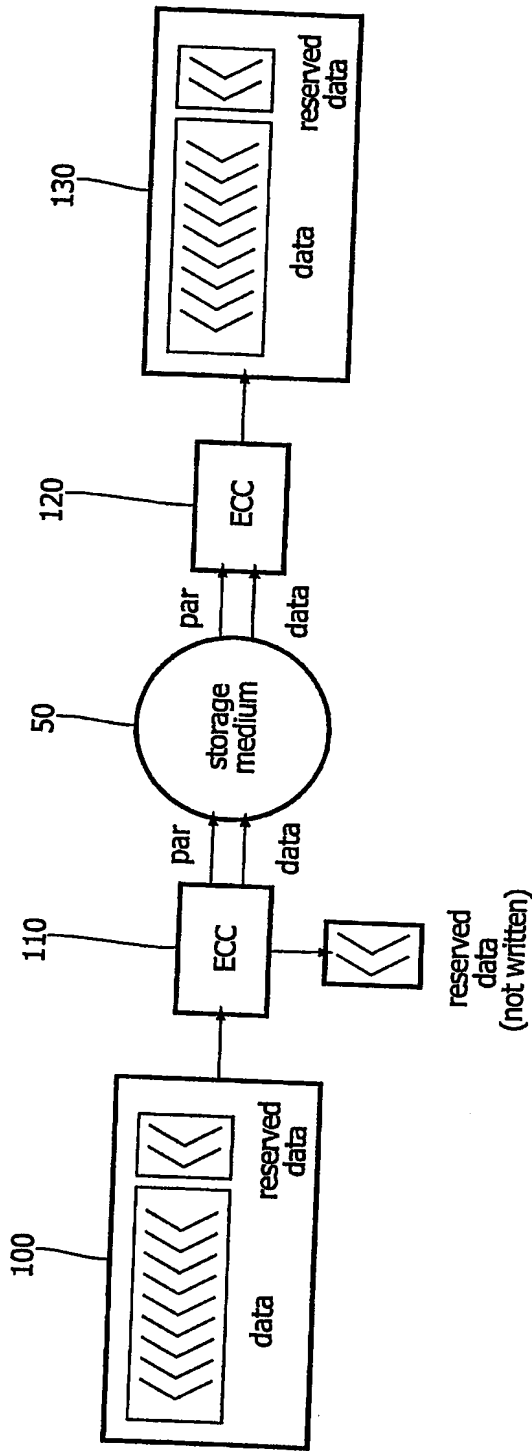


FIG.20

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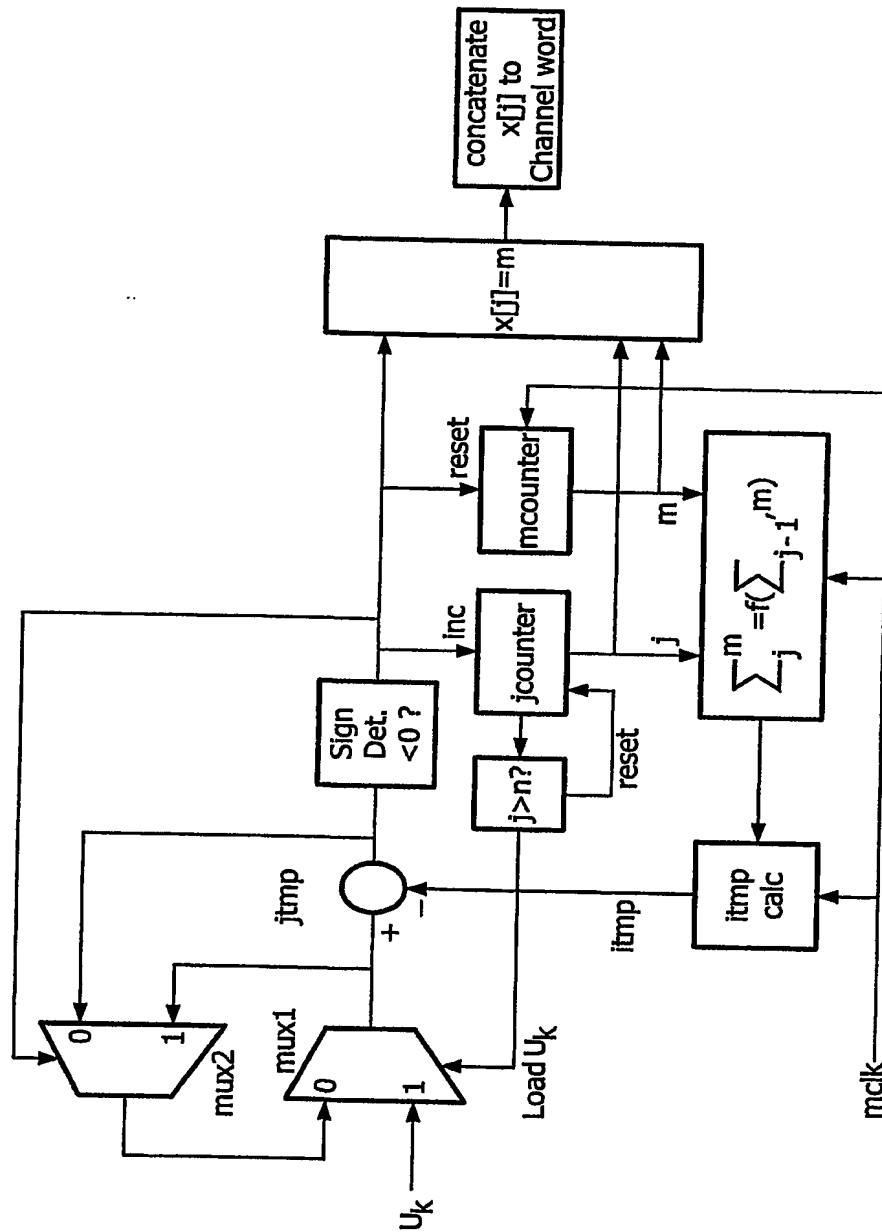


FIG.21

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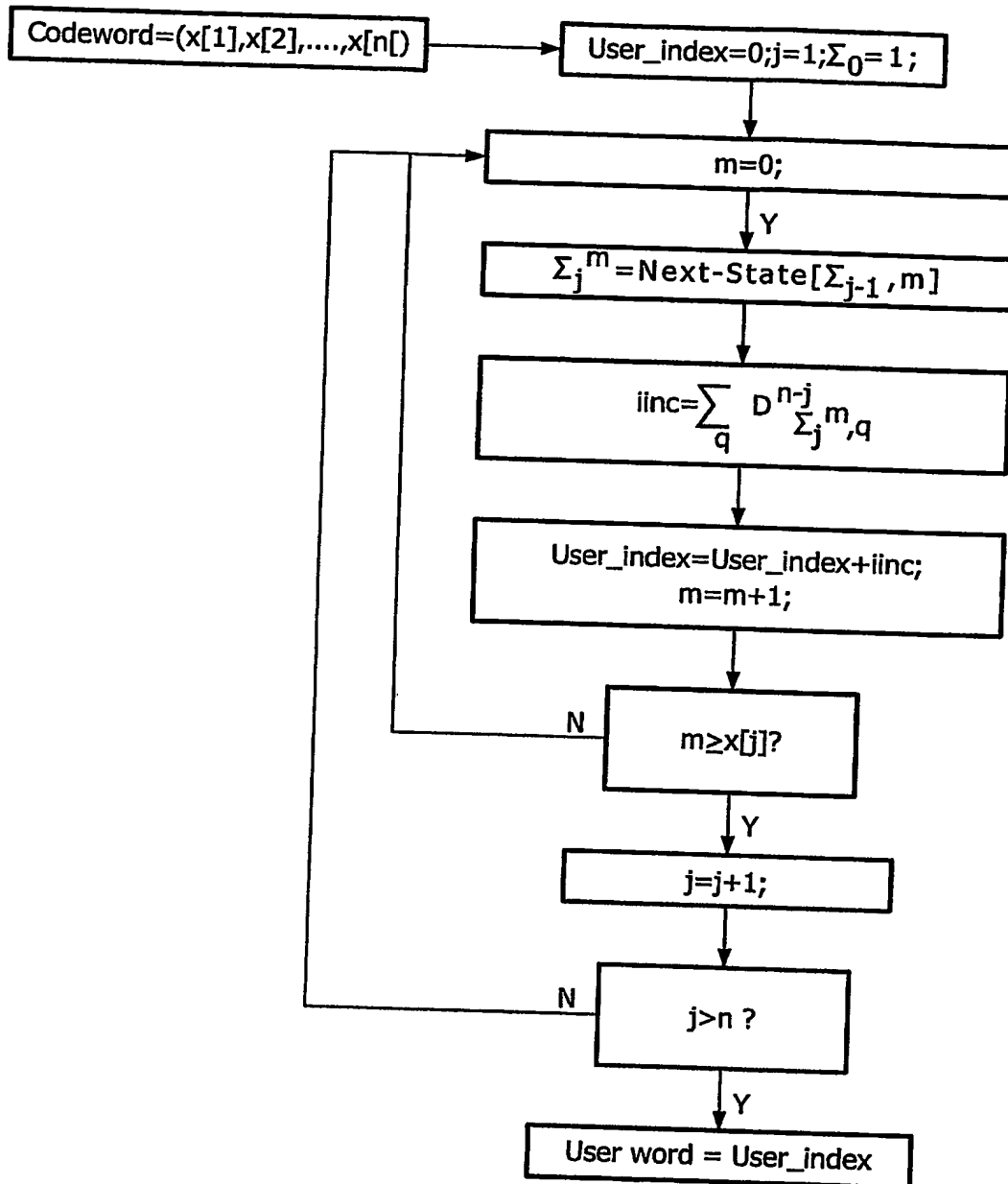


FIG.22

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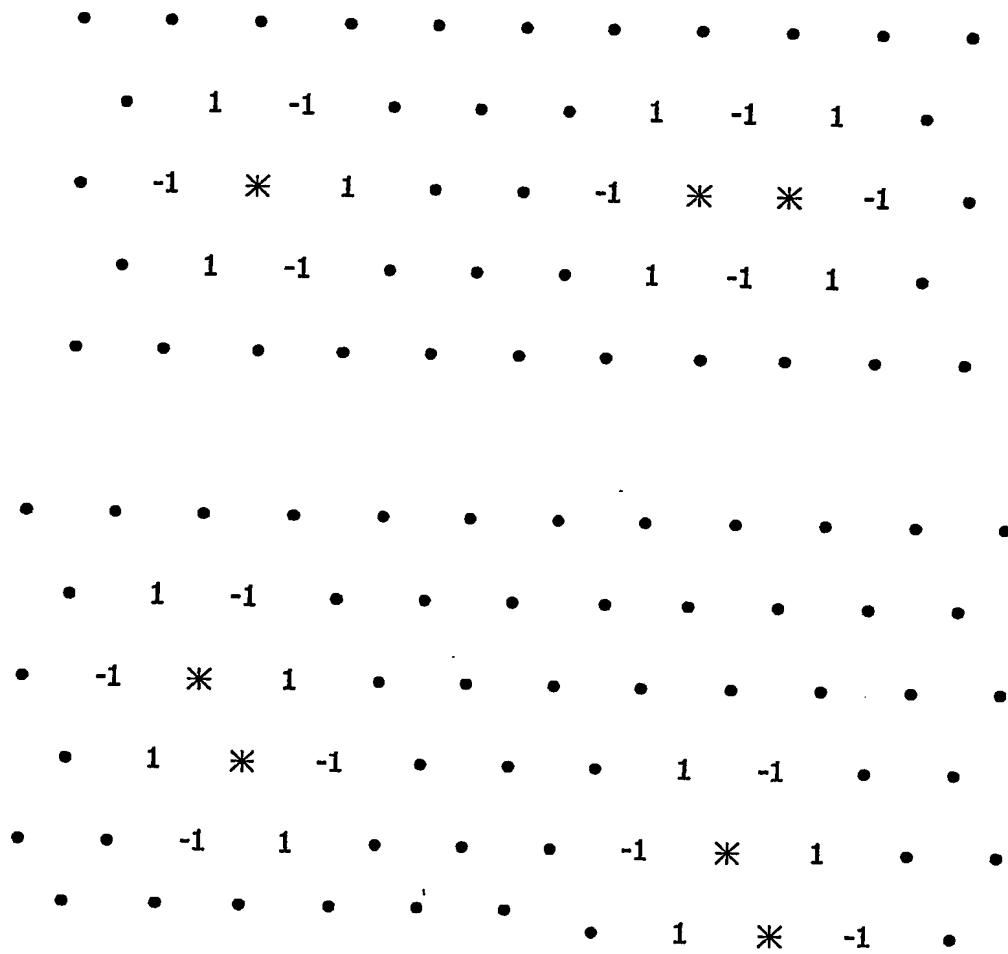


FIG.23



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$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & -1 & 1 & 0 \\
 1 & 0 & -1 & 0 \\
 -1 & 1 & 0 & 0
 \end{array}$$

FIG.24a

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & -1 & 1 & 0 \\
 1 & 0 & -1 & 0 \\
 -1 & 1 & 0 & 0 \\
 0 & 0 & 0 & 0
 \end{array}$$

FIG.24b

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & -1 & 1 & 0 \\
 1 & 0 & -1 & 0 \\
 -1 & 1 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0
 \end{array}$$

FIG.24c

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 1 & -1 & 1 \\
 -1 & 0 & 0 & -1 \\
 1 & 0 & 0 & 1 \\
 -1 & 1 & -1 & 0
 \end{array}$$

FIG.24d

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 1 & -1 & 1 \\
 -1 & 0 & 0 & -1 \\
 1 & 0 & 0 & 1 \\
 -1 & 1 & -1 & 0
 \end{array}$$

FIG.24e

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 1 & -1 & 1 \\
 -1 & 0 & 0 & -1 \\
 1 & -1 & 1 & 0
 \end{array}$$

FIG.24f

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 1 & 0 & 0 & 0 \\
 -1 & 0 & 0 & 0
 \end{array}$$

FIG.24g

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 -1 & 1 & 0 & 0
 \end{array}$$

FIG.24h

$$\begin{array}{cccc}
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 0 & 0 & 0 \\
 0 & 1 & 0 & 0 \\
 -1 & -1 & 0 & 0 \\
 1 & 0 & 0 & 0
 \end{array}$$

FIG.24i

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```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
-1 1 0 0
1 -1 0 0

```

FIG.25a

```

0 0 0 0
0 0 0 0
0 0 0 0
0 1 0 0
-1 -1 0 0
1 1 0 0
-1 0 0 0

```

FIG.25b

```

0 0 0 0
0 0 0 0
0 0 0 0
1 0 0 0
-1 0 0 0
1 0 0 0
-1 0 0 0

```

FIG.25c

```

0 0 0 0
0 0 0 0
0 0 0 0
1 0 0 0
-1 0 0 0
1 0 0 0

```

FIG.25d

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
-1 1 -1 1

```

FIG.25e

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
1 -1 1 0

```

FIG.25f

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
1 -1 1 0

```

FIG.25g

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
1 -1 1 0
-1 1 -1 0

```

FIG.25h

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
0 0 -1 1
0 1 0 -1
-1 0 0 1

```

FIG.25i

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
-1 1 -1 1
1 -1 1 -1

```

FIG.25j

```

0 0 0 0
0 0 0 0
0 0 0 0
-1 1 0 0
1 -1 0 0
-1 1 0 0
1 -1 0 0

```

FIG.25k

```

0 0 0 0
0 0 0 0
0 0 0 0
0 1 -1 1
-1 0 0 -1
1 -1 1 0
0 0 0 0

```

FIG.25l

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```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
1 -1 1 0
-1 1 -1 0
1 -1 1 0

```

FIG.26a

```

0 0 0 0
0 0 0 0
0 1 -1 1
-1 0 0 -1
1 -1 1 0
0 0 0 0
0 0 0 0

```

FIG.26b

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
-1 1 -1 1
1 -1 1 -1
-1 1 -1 1

```

FIG.26c

```

0 0 0 0
0 0 0 0
0 0 0 0
1 -1 1 0
-1 1 -1 0
1 -1 1 0
-1 1 -1 0

```

FIG.26d

```

0 0 0 0
0 0 0 0
0 0 0 0
0 -1 1 0
1 0 -1 0
-1 1 1 0
0 -1 0 0

```

FIG.26e

```

0 0 0 0
0 0 0 0
0 0 0 0
-1 1 -1 1
1 -1 1 -1
-1 1 -1 1
1 -1 1 -1

```

FIG.26f

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 -1 1
0 1 0 -1
-1 0 0 1
1 -1 1 -1

```

FIG.26g

```

0 0 0 0
0 0 0 0
0 0 0 0
0 -1 1 0
1 0 -1 0
-1 1 0 0
1 -1 0 0

```

FIG.26h

```

0 0 0 0
0 0 0 0
0 0 0 0
0 1 0 0
-1 -1 1 0
1 0 -1 0
-1 1 0 0

```

FIG.26i

```

0 0 0 0
0 0 0 0
0 0 0 0
0 0 0 0
0 -1 1 0
1 0 -1 1
-1 1 -1 0

```

FIG.26j

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	0		0	
0		1		0
	-1		-1	
0		0		0
	1		1	
0		-1		0
	0		0	

FIG.27a

0.0057	0	0.0339	0	0.0339	0	0.0057
0	-0.0339	0	0.3607	0	-0.0339	0
0.0254	0	0.0000	0	0.0000	0	0.0254
0	-0.3607	0	0.2407	0	-0.3607	0
-0.0339	0	-0.2407	0	-0.2407	0	-0.0339
0	0	0	0	0	0	0
0.0339	0	0.2407	0	0.2407	0	0.0339
0	0.3607	0	-0.2407	0	0.3607	0
-0.0254	0	-0.0000	0	-0.0000	0	-0.0254
0	0.0339	0	-0.3607	0	0.0339	0
-0.0057	0	-0.0339	0	-0.0339	0	-0.0057

FIG.27b

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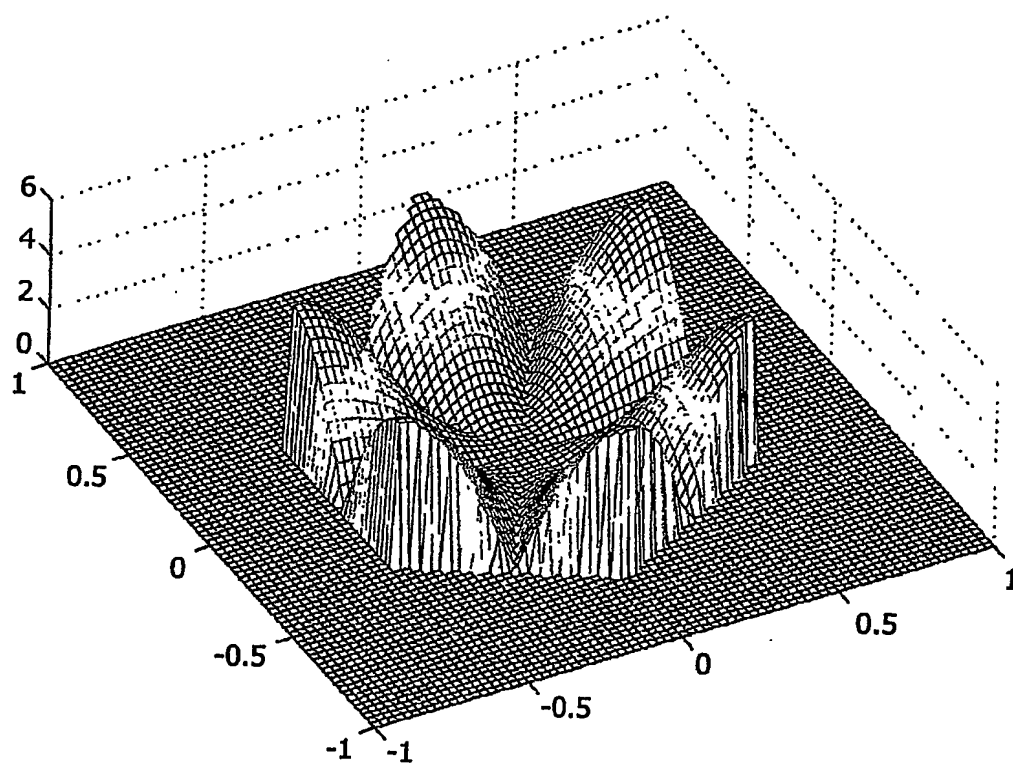


FIG.28

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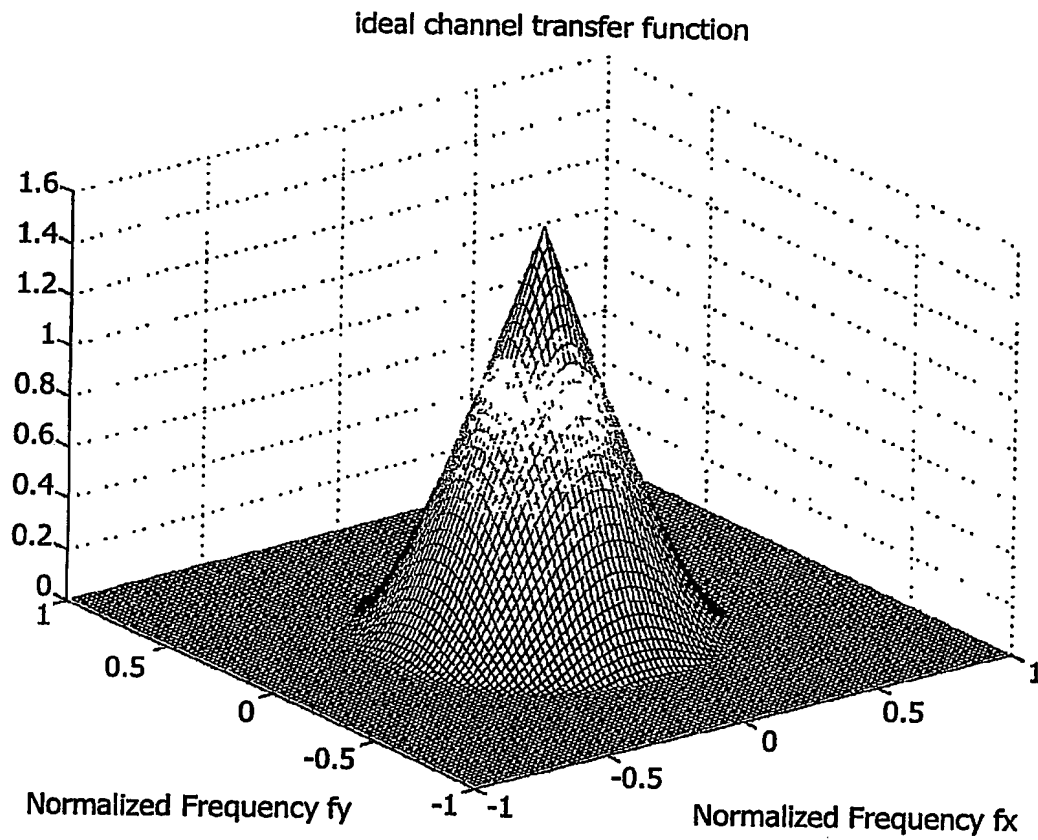


FIG.29